CHAPTER 15
CULTURAL RESOURCES

FINAL
ENVIRONMENTAL
IMPACT STATEMENT

Brightwater
Regional Wastewater
Treatment System

VOLUME 3

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Chapter 15
Cultural Resources

15.1 Introduction

This chapter addresses the affected environment, impacts, mitigation measures, and significant unavoidable adverse impacts related to cultural resources for the three systems proposed as part of the Brightwater Regional Treatment System. Figures and references cited in this chapter are located at the end of the chapter.

15.1.1 Overview of the Chapter

This chapter consists of an affected environment section that describes existing historic buildings and structures and archaeological resources, and the probability for unknown archaeological resources in the project area. The impacts and mitigation section discloses potential adverse impacts to known and unknown cultural resources that are, or that may be significant on the treatment plant sites, primary and secondary candidate portal sites, and in outfall zones. Impacts and mitigation that are common to both the Route 9 and Unocal Systems are discussed, followed by impacts and mitigation for each system. The chapter includes a summary of probabilities for affecting archaeological resources, discusses the potential to affect historic buildings, and provides a comparison and relative ranking of the risk for affecting cultural resources among system alternatives under consideration.

Comments on the Cultural Resources chapter of the Draft EIS generally addressed the following:

- Concern about impacts to the Bear Creek Grange Hall
- The potential that a historic building exists on the Route 9 treatment plant site
- The need to estimate the probability that archaeological resources exist on the project site
- The level of consultation conducted with the City of Woodinville
- The preparation of treatment and monitoring plans to address inadvertent discovery of significant archaeological resources during construction
- The level of previous historic building survey efforts in Lake Forest Park and Kenmore

The Draft EIS addressed previously inventoried historic buildings and structures for initial portal siting areas and conveyance corridors. Revised project information for the Final EIS eliminated potential impacts to many inventoried buildings described in the Draft EIS.

Additional field surveys, inventories, and evaluations of historic buildings and structures were completed for the Final EIS. The Bear Creek Grange Hall and other buildings were inventoried and evaluated on the Route 9 treatment plant site through a field survey, inventory, and evaluation. Results of the survey are summarized in the affected environment section. The new evaluations address probability estimates for archaeological resources as discussed in the Impacts section. The City of Woodinville was contacted to discuss historic buildings in the Woodinville vicinity.

Methodologies and background data used to develop findings and conclusions are contained in Appendix 15-A, Cultural Resources: Historic Buildings and Structures.

15.2 Affected Environment

The following sections summarize federal, state, and local laws that regulate archaeological and historic resources; describe the inventory process for identifying these resources; and discuss known archaeological and historic resources in the project area.

15.2.1 Affected Environment Common to All Systems

15.2.1.1 Regulatory Environment

Federal Laws

Federal laws, regulations, agency-specific directives, and Executive Orders require a consideration of cultural resources in federal undertakings. Section 106 of the National Historic Preservation Act (NHPA) of 1966, its subsequent amendments, and Executive Order 11593 require that federal agencies “take into account” the effects of a federal undertaking on any district, site, building, structure, or object that is included in or eligible for inclusion in the National Register of Historic Places (NRHP).

State Laws

The State of Washington protects cultural resources, including Indian graves and archaeological sites. The Revised Code of Washington (RCW) Chapter 27.44, Indian Graves and Records, prohibits “the willful removal, mutilation, defacing, or destruction of Indian burials.” Chapter 27.53 of the RCW, Archaeological Sites and Resources, prohibits the unauthorized removal, theft, and destruction of archaeological sites by

anyone, including archaeologists, and establishes a permit process for the authorized recovery of archaeological sites.

The State Environmental Policy Act (SEPA) (RCW Chapter 197-11) requires that state and local agencies evaluate and mitigate the impacts of their actions on cultural resources. SEPA requires that significant properties, including properties listed in or eligible for the Washington Heritage Register, be given consideration when actions affect them.

Local Regulations

King and Snohomish Counties and cities in the project area have passed ordinances that govern management of archaeological sites and historic buildings and structures.

- The King County Historic Preservation Program (HPP), originally established as the King County Office of Historic Preservation in 1978, administers incentive programs, conducts environmental review, maintains King County's historic resource inventory and archaeological sensitivity model and manages the King County Landmark Program. The King County Executive appoints the King County Landmarks and Heritage Commission. The commission accepts nominations of historic resources, such as buildings and archaeological sites for listing as King County Landmarks that meet established criteria, including being at least 40 years old and having both physical integrity and historical significance. The King County HPP also reviews development proposals located on or adjacent to historic resources listed in the King County Historic Resources Inventory (HRI). The HRI includes districts, objects, cultural landscapes, and other historic sites in addition to archaeological sites, historic buildings and historic structures. The King County HPP suggests alternatives to developers if project effects on historic resources are adverse, recommends approval of projects with conditions protecting historic resources, and/or designates historic resources for listing in the King County Landmarks List.
- Snohomish County adopted an historic preservation ordinance on April 15, 2002, which established the Snohomish County Historic Preservation Commission. The Commission has several functions: It oversees the Snohomish County Cultural Resource Inventory, reviews and evaluates nominations to the Snohomish County Register of Historic Places (SCRHP), provides and administers incentive programs for owners of properties listed on the SCRHP, and reviews and makes recommendations to County staff or elected officials on proposed land use applications that may affect SCRHP properties, including archaeological sites.
- The City of Bothell passed a historic preservation ordinance, maintains the Bothell Register of Historic Landmarks, and maintains a master inventory of historic buildings and structures.
- The City of Woodinville has an interlocal agreement with the King County HPP, has adopted local landmark ordinances, and has produced a partial inventory of

historic buildings. The City of Woodinville uses the services of the King County HPP for landmark designation.

- The City of Lake Forest Park maintains an inventory of historic buildings and structures but has not passed a historic preservation ordinance.
- The City of Edmonds recently passed a historic preservation ordinance but has not conducted a formal survey of historic buildings and structures.
- The City of Shoreline has an interlocal agreement with King County (HPP), has adopted local landmark ordinances, and has produced an inventory of historic buildings. The City of Shoreline has adopted local landmark ordinances and interlocal service agreements whereby the King County HPP provides preservation services to the City. The City of Shoreline's historic resource inventory was completed in 1996.
- The City of Kenmore has an interlocal agreement with the King County HPP, has adopted local landmark ordinances, and has produced a partial inventory of historic buildings. The City of Kenmore uses the services of the King County HPP for landmark designation and relies on King County HPP inventory data, which is not comprehensive.
- The cities of Brier, Mountlake Terrace, and the Town of Woodway have not passed historic preservation ordinances and have not conducted formal surveys of historic buildings and structures.

15.2.1.2 Project Area and Inventory Process for Treatment Plants and Candidate Portal Sites

Overall, cultural resources in the Brightwater project area include one recorded archaeological site; other areas with a high probability for archaeological resources; and historic buildings and structures designated by national, state, and local agencies. The Brightwater project area is located within several aboriginal territories. Cultural resources include hunter-fisher-gatherer archaeological resources, historic period archaeological resources, traditional cultural places, historic buildings and structures, and shipwrecks. The following is a summary of possible cultural resources within the study area that may be significant.

The cultural resources assessment conducted for the Brightwater treatment plant sites consisted of the following:

- A review of archival and contemporary data sources regarding hunter-fisher-gatherer use, historic use, historic buildings and structures, and environmental history
- Tribal consultation
- Consultation with the Washington State Office of Archaeology and Historic Preservation (OAHP); Snohomish County; King County; and the cities of Bothell,

Woodinville, Lake Forest Park, Edmonds, Shoreline, Kenmore, Woodway, Mountlake Terrace, and Brier

- Field reconnaissance
- Production of a technical report that meets standards for reporting developed by the OAHP and is consistent with federal reporting standards

Tribal consultation consisted of an exchange of information regarding cultural places and activities between the archaeological consultant and local tribal governments. Formal consultation between federal agencies and the tribes is anticipated to occur during the permitting process.

Archaeologists used existing data to identify known hunter-fisher-gatherer (pre-contact), ethnographic (1792–1860), and historic period (1860–1952) archaeological sites and to estimate the probability for archaeological resources in the project area. Data sources are described in Lewarch et al. (2002).

Archaeologists identified areas with a high probability for archaeological resources on the identified treatment plant sites, in portal siting areas, and in outfall zones based on archival review, assessment of environmental data, and distribution patterns of recorded archaeological sites in Western Washington. In addition, geotechnical borings with a high probability for archaeological resources were monitored in some areas to obtain information on subsurface stratigraphy. Archeologists estimated the probability for significant hunter-fisher-gatherer archaeological materials for each portal siting area along the conveyance corridors, for each identified treatment plant site, and for the outfall zones by assessing seven environmental characteristics for each area and by noting previously recorded sites nearby.

The probability for significant ethnographic period archaeological resources was estimated by identifying ethnographic place names for areas or landforms and incorporating the ethnographic context of an identified treatment plant site or a portal siting area.

Archaeologists estimated the probability of encountering significant historic archaeological resources by counting buildings and structures on historic maps and considering the historic context of an area. It was assumed that localities that had historic buildings or structures on early maps might have remnants of foundations and/or outbuildings; agricultural, domestic, or industrial features; historic period artifacts; and refuse disposal areas.

Historic buildings and structures were assessed through review of historic building and structure inventory forms and surveys on file at the OAHP. In addition, the Deputy State Historic Preservation Officer was consulted to determine the potential effects of project alternatives on historic buildings and structures in the project area. Both Snohomish and King County, as well as project area cities, were consulted to identify local historic buildings and structures. A field survey of historic buildings on candidate portal sites was conducted to identify significant historic buildings and structures. Historic buildings and

structures with physical integrity and/or distinctive architectural features on primary portal sites and treatment plant sites were inventoried and evaluated. Historic buildings and structures in secondary portals were identified in the field survey but not inventoried and evaluated. King County, Snohomish County, and the City of Bothell were consulted during the field survey to determine the significance of historic buildings identified in primary portals.

15.2.1.3 Project Area and Inventory Process for Outfall Zones

Shipwrecks

The probability for shipwrecks in the outfall zones (Zones 6 and 7S) was determined based on a review of archival literature on file at the OAHP, the Seattle Public Library, the University of Washington Libraries, the Tacoma Public Library, and the National Archives and Records Administration, Pacific Northwest Region, Sand Point Branch.

The literature review indicated that 11 ships have sunk within 1.5 miles of the two outfall zones. Golder Associates and Parametrix (King County, 2001) completed a side scan sonar study of the outfall zones for the proposed Brightwater System and did not identify any shipwrecks or large debris that may be interpreted as a sunken vessel on the seafloor (Sylvester, personal communication, 2002).

Documented shipwrecks within 0.5 mile of the proposed outfall zones were included in this determination to take into account current and tidal drift that may have caused shipwrecks to move along the seafloor. None of the shipwrecks have been evaluated for listing in the NRHP. Documented shipwrecks were identified only in Zone 7S; none were identified in Zone 6. Refer to the discussions under each system, below.

Archaeological Resources

There are no recorded archaeological resources in outfall zones (Zones 6 and 7S). These areas have a low probability for archaeological materials because of the geomorphology of the outfall zones, water depth, and the history of sea level rise in the project area.

15.2.2 Affected Environment: Route 9 System

15.2.2.1 Treatment Plant: Route 9

The Route 9 treatment plant site is partially located in the Little Bear Creek floodplain and was known to the Duwamish and Sammamish as Ila'huleč, which Waterman (ca. 1920) did not translate. In May 2002, archaeologists conducted field reconnaissance in areas with a high probability for archaeological deposits that were accessible on the Route 9 treatment plant site. Archaeologists did not identify archaeological deposits

during field reconnaissance, or while monitoring geotechnical borings at the site in November 2001 (Lewarch, et al. 2002).

Overall, the Route 9 treatment plant site has a moderate probability for hunter-fisher-gatherer archaeological deposits, a low probability for ethnographic period archaeological resources, and a moderate probability for historic period archaeological resources. The treatment plant site is near Little Bear Creek, which had salmon runs over the past few thousand years that would have attracted hunter-fisher-gatherers. However, the treatment plant site does not have ethnographic place names that specifically describe the area, and early historic period maps show only a few structures in the treatment plant vicinity.

Historic Buildings and Structures

Five historic buildings were identified on the Route 9 treatment plant site during field surveys (Table 15-1; Figure 15-1). Eligibility status of historic buildings and structures was determined through consultation with Snohomish County Planning and Development Services (Lindgren, personal communication, 2003).

Table 15-1. Evaluated Historic Buildings and Structures on the Route 9 Treatment Plant Site

Name	Location	Construction Date	Evaluation Status
Bear Creek Grange Hall	22729 SR 9 SE, Woodinville	1961	Snohomish County determined not eligible for NRHP[a], WHR[b] and SCRHP[c].
Wild West Classic Mustang Ranch Building	22909 SR 9 SE, Woodinville	1924	Snohomish County determined eligible for SCRHP[c].
House	23427 SR 9 SE, Woodinville	1924	Snohomish County determined not eligible for NRHP[a], WHR[b] and SCRHP[c].
Howell/Ernquist Farm Outbuilding	23421A SR 9 SE, Woodinville	ca. 1950	Snohomish County determined not eligible for NRHP[a], WHR[b] and SCRHP[c].
Howell Log Cabin	23421 SR 9 SE, Woodinville	1924	Snohomish County determined eligible for SCRHP[c].

[a] National Register of Historic Places
[b] Washington Heritage Register
[c] Snohomish County Register of Historic Places

15.2.2.2 Conveyance: Route 9

Table 15-2 summarizes the probability for cultural resources on candidate portal sites within the portal siting areas for the Route 9 System. Probability is related to factors such as the distance to streams with salmon runs; the number of hunter-fisher-gatherer archaeological sites recorded in the vicinity of a candidate portal site; the number of ethnographic villages and/or ethnographic place names in a candidate portal site vicinity; and the number of historic buildings, roads, railroads, or other historic period features that appeared near the candidate portal site vicinity on historic maps.

The proposed safety relief point in the vicinity of the Kenmore Pump Station and near the historic mouth of the Sammamish River has a high probability for hunter-fisher-gatherer archaeological resources. This level of probability would apply under both the 195th and 228th Street corridors, below.

Table 15-2. Summary of Probability of Cultural Resources on Sites in Portal Siting Areas, Route 9 System

Portal Number	Number of Historic Buildings[a]	Probability of Hunter-Fisher-Gatherer Archaeological Deposits	Probability of Ethnographic Period Archaeological Deposits	Probability of Historic Period Archaeological Deposits
195th Street Corridor				
Primary Portal Siting Areas				
5	1	High	High	Low
11	1	High	High	Moderate
19	0	High	High	High
41	0	High	Moderate	Moderate
44	2	High	Moderate	Low
Secondary Portal Siting Areas				
7	0	Moderate	Moderate	Low
23	1	Low	Low	Low
27	0	High	Moderate	Low
45	4	Moderate	High	Low
228th Street Corridor				
Primary Portal Siting Areas				
11	1	High	High	Moderate
19	0	High	High	High
26	0	High	Moderate	High
33	0	High	Moderate	Low
39	3	High	Moderate	High
41	0	High	Moderate	Moderate
44	2	High	Moderate	Low
Secondary Portal Siting Areas				
22	3	Low	Low	Low
24	1	Low	Low	Low
30	0	Low	Low	Low
37	1	Low	Low	High

Route 9–195th Street Corridor

Archaeological Resources

Candidate portal sites in Portal Siting Areas 5, 11, and 19 have high probabilities for hunter-fisher-gatherer and ethnographic period archaeological deposits. Sites in Primary Portal Siting Areas 41 and 44 and Secondary Portal Siting Area 27 have high probabilities for hunter-fisher-gatherer archaeological resources and moderate probabilities for ethnographic period archaeological deposits. Sites in Primary Portal Siting Area 19 are the only portal sites in the corridor with a high probability for historic

period archaeological resources. This is due to the high number of structures, roads, railroads, and other historic period features that appeared on historic maps of the Bothell area.

Historic Buildings and Structures

Nine historic buildings were identified on primary and secondary candidate portal sites along the 195th Street corridor. Four of the buildings, all uninventoried, are on primary candidate portal sites, while the other five historic buildings are located on secondary candidate portal sites. Eligibility status of historic buildings was determined through consultation with the King County Historic Preservation Program (Sundberg, personal communication, 2003).

One of the four uninventoried buildings, the Twin Creeks Riding Stable (Figure 15-1) was inventoried and evaluated during field survey, inventory, and evaluation efforts. King County determined that this building, located on candidate portal site 44D, appears to be not eligible for the NRHP, WHR, or King County Landmarks List (Table 15-3). The three remaining uninventoried buildings on the primary portal sites did not possess physical integrity and were therefore not inventoried during the field survey.

Table 15-3. Evaluated Historic Buildings and Structures in the 228th Street Corridor Primary Portal Siting Areas

Name	Location	Primary Candidate Portal Site	Evaluation Status
Tol P. Jacobus House	3112 228th Street SE, Bothell	39C	Determined not eligible for NRHP[a]. Snohomish County determined eligible for listing in the SCRHP[c].
J. Wallen Property	2908 228th Street SE, Bothell	39B	Snohomish County and the City of Bothell determined not eligible for listing in the NRHP[a], WHR[b] and SCRHP[c].
North Creek School	22711 31st Avenue SE, Bothell	39A	Listed in the NRHP[a].
Twin Creeks Riding Stable[e]	19202 80th Avenue NE, Kenmore	44D	King County determined that buildings appear not eligible for NRHP[a], WHR[b] and KCLL[d].

[a] National Register of Historic Places
[b] Washington Heritage Register
[c] Snohomish County Register of Historic Places
[d] King County Landmarks List
[e] Also pertains to the Route 9 195th Street alternative

Portal 41 Influent Pump Station Option

The affected environment for the Route 9–195th Street Corridor IPS Option is the same as that described for the portal at Portal Siting Area 41 in Table 15-2.

Route 9–228th Street Corridor

Archaeological Resources

Candidate portal sites in Primary Portal Siting Areas 11 and 19 have high probabilities for hunter-fisher-gatherer and ethnographic period archaeological deposits. Primary Portal Siting Areas 26, 33, 39, 41, and 44 have high probabilities for hunter-fisher-gatherer archaeological resources and moderate probabilities for ethnographic period archaeological deposits. Primary Portal Siting Areas 19, 26, and 39, and Secondary Portal Siting Area 37, have a high probability for historic period archaeological resources (Anderson Map Company, 1910).

Historic Buildings and Structures

Eleven historic buildings were identified on primary and secondary candidate portal sites along the 228th Street corridor. Six historic buildings, two of which are uninventoried, are on primary portal sites (Figure 15-2). The two uninventoried buildings lacked physical integrity and/or architectural distinction and were, therefore, not inventoried during the field survey. Table 15-3 provides information on evaluated buildings on the 228th Street corridor primary candidate portal sites. Eligibility status of historic buildings and structures was determined through consultation with the Snohomish County Planning and Development Services (Lindgren, personal communication, 2003), King County Historic Preservation Program (Sundberg, personal communication, 2003), and the City of Bothell Community Development Department (Garwood, personal communication, 2003).

Portal 41 Influent Pump Station Option

The affected environment for the Route 9–228th Street Corridor IPS Option is the same as that described for Route 9–195th Street Corridor above.

15.2.2.3 Outfall: Route 9

The potential for archaeological resources along the onshore segment for the Route 9 outfall is the same as for Portal 19. Four reported shipwrecks may be located in outfall Zone 7S. Individual reported shipwrecks are listed in Table 15-4. As previously described, hunter-fisher-gatherer archaeological resources are not expected in the outfall zones.

Table 15-4. Reported Shipwrecks in Outfall Zone 7S

Ship Name	Date	Location	Source	NRHP Status[a]
Donna Lane	Burned, 6/14/1927	Point Wells Standard Oil Company Dock	United States Customs and United States Coast Guard Treasury Department (1874-1940)	Not Evaluated
Santa Maria	Sank, 3/10/1955	Off Point Wells	*Marine Digest* (1955:33); Newell (1960); Evergreen Scuba Divers Guide (1979)	Not Evaluated
Willie Higgins	Unknown, 1926	Richmond Beach	Golder Associates and Parametrix, Incorporated (2001)	Not Evaluated
Marion	Unknown, 6/27/1902	Richmond Beach	Golder Associates and Parametrix, Incorporated (2001)	Not Evaluated

[a] NRHP-National Register of Historic Places

15.2.3 Affected Environment: Unocal System

15.2.3.1 Treatment Plant: Unocal

Archaeological Resources

The Unocal treatment plant site is within territory attributed to the Snohomish, Suquamish, and Snoqualmie people (Haeberlin and Gunther, 1930; Turner, 1976; Tweddell, 1953). Waterman (ca. 1920) recorded the name for Edwards Point in the native Lushootseed language as *iɬəɬstubus* or *stubus*, meaning "blunt face." Snohomish informants provided a similar name, *s'toboc*, for Edwards Point and Point Wells (Tweddell, 1953). The Snoqualmie may have had a winter village or a permanent fishing camp used on an annual basis at Edmonds (Kennedy and Larson, 1984; Turner, 1976). The Suquamish fished for salmon in the waters off Edmonds and gathered cattails at Edmonds (Lane, 1974; Miller, 1999; Snyder, 1988).

Field reconnaissance was conducted by an archaeologist in wetland areas on the eastern edge of the Unocal treatment plant site in March 2002 (Lewarch et al., 2002). Most ground surfaces at the Unocal treatment plant site have been extensively modified by construction activities. Nevertheless, the site has a high probability for hunter-fisher-gatherer, ethnographic period, and historic period archaeological deposits based on the history of the area; references to the area in the ethnographic literature; and the shoreline, marsh, and stream floodplain habitats. One recorded hunter-fisher-gatherer archaeological site, the Deer Creek Hatchery Shell Scatter (OAHP No. 45SN310) is located on the Unocal treatment plant site. Historic archaeological deposits could also be present in the northern portion of the Unocal treatment plant site where several businesses operated for short periods of time in the early 1900s (Anderson Map Company, 1910; Cloud, 1953; Cox and Bard, 1996; Metsker, 1927; Whitfield, 1926).

Historic Buildings and Structures

Buildings and structures on the Unocal treatment plant site were previously evaluated and determined not eligible for listing in the National Register of Historic Places (Robbins, 1996).

15.2.3.2 Conveyance: Unocal

Archaeological Resources

Primary Portal Siting Areas 11 and 14, and Secondary Portal Siting Areas 5, 10, 12, and 13, have high probabilities for hunter-fisher-gatherer and ethnographic period archaeological deposits (Table 15-5). Secondary Portal Siting Areas 12 and 13 also have high probabilities for historic period archaeological deposits. One hunter-fisher-gatherer archaeological site, the Quadrant Site, is recorded 530 feet east of Portal Siting Area 14. The archaeological site has not been evaluated for eligibility for listing in the NRHP.

Archaeologists monitored geotechnical borings along the Unocal corridor between November 2001 and January 2002 to identify any previously unrecorded archaeological deposits that might be significant. No archaeological materials were found by archaeologists in the backdirt of geotechnical borings.

As described under the Route 9 System discussion above, the proposed safety relief point in the vicinity of the Kenmore Pump Station and near the historic mouth of the Sammamish River has a high probability for hunter-fisher-gatherer archaeological resources. This probability applies to the Unocal System as well.

Historic Buildings and Structures

Sixteen historic buildings were identified in the Unocal primary and secondary candidate portal sites. Nine uninventoried historic buildings are in primary candidate portal sites. Research and consultation with Snohomish County indicated that eight uninventoried buildings in the primary portals lacked physical integrity and/or lacked architectural distinction and were, therefore, not inventoried and evaluated during the field survey. Research indicated that the other uninventoried building, in King County, also lacked physical integrity and/or lacked architectural distinction and was, therefore, not inventoried and evaluated during the field survey.

Table 15-5. Summary of Probability of Cultural Resources on Sites in Portal Siting Areas on the Unocal Corridor

Portal Number	Number of Historic Buildings[a]	Probability of Hunter-Fisher-Gatherer Archaeological Deposits	Probability of Ethnographic Period Archaeological Deposits	Probability of Historic Period Archaeological Deposits
Primary Portal Siting Areas				
3	8	Low	Low	Low
7	0	Moderate	Moderate	Low
11	1	High	High	Moderate
14	0	High	High	Low
Secondary Portal Siting Areas				
5	1	High	High	Low
10	4	High	High	Low
12	1	High	High	High
13	1	High	High	High

[a]Buildings older than 50 years, inventoried buildings and evaluated buildings within primary and secondary portals.

15.2.3.3 Outfall: Unocal

The potential for archaeological resources for the onshore segment of the Unocal outfall is the same as for the Unocal treatment plant site. There are no recorded shipwrecks in outfall Zone 6. As previously described, hunter-fisher-gatherer archaeological resources are not expected in the outfall zones.

15.3 Impacts and Mitigation

Impacts of the proposed project on significant cultural resources at the Unocal and Route 9 treatment plant sites, in portal siting areas, and in the outfall zones are summarized in this section.

15.3.1 Impacts and Mitigation Common to All Systems

15.3.1.1 Treatment Plant and Conveyance Impacts Common to All Systems

Construction Impacts Common to All Systems: Treatment Plant and Conveyance

Overall, construction may affect unrecorded archaeological sites and significant historic buildings and structures, on treatment plant sites, on portal sites, and in the vicinity of the proposed safety relief point. Direct impacts to archaeological deposits would include changes to the condition or location of archaeological materials, such as removal or disturbance of archaeological materials during excavation, or changes in the condition of archaeological deposits due to compaction from placement of fill, construction spoils, roadways, or buildings. Effects could include modification or destruction of archaeological deposits during geotechnical sampling operations, dewatering operations, or subsurface construction excavation. Indirect impacts, such as changes in groundwater, could also affect preservation.

Similar construction-related impacts could also occur where connections to local sewer systems are constructed in the vicinity of the Kenmore Pump Station, Swamp Creek Pump Station, North Creek Pump Station, and Kenmore local sewer system. The probability and magnitude of impacts would vary based on the length of connection and on whether or not the connection is built through fill along existing rights-of-way. Longer corridors, and/or those corridors crossing undeveloped areas would have a higher potential for impacts to cultural resources.

Unknown hunter-fisher-gatherer and historic period archaeological sites are those sites in which archaeological materials may occur but that have not been recorded by a professional archaeologist. If previously unknown archaeological materials that may be significant are identified during construction excavation, then construction would be stopped to allow archaeologists the opportunity to evaluate the significance of the deposits. If an identified archaeological site has integrity and is probably significant, the archaeological site would be formally evaluated in consultation with the lead federal agency, the OAHP, King County or Snohomish County, and the affected Indian tribe(s).

Formal evaluation may require archaeological site testing. If the archaeological deposits are probably eligible for listing in the NRHP and cannot be avoided, impacts would be mitigated as described in the mitigation section below.

Buildings or structures determined eligible for listing in a local, state, or national historic property register adversely affected by project construction must either be avoided or appropriately mitigated if they cannot be avoided (36 CFR 800.6). Historic buildings and structures may be demolished or adversely affected by ground vibration or ground settling during open cut excavation at treatment plant sites or on portal sites. Impacts to viewsheds can also occur, as viewsheds can be a critical contributing element to the historic context or setting of a building or structure and may be essential to the building or structure's significance.

Operation Impacts Common to All Systems: Treatment Plant and Conveyance

It is not anticipated that significant cultural resources would be affected during treatment plant or onsite pump station operations associated with either the Unocal or Route 9 treatment plant sites. Similarly, no significant cultural resources would be affected at portal sites. No additional ground disturbance is anticipated.

Proposed Mitigation Common to All Systems: Treatment Plant and Conveyance

Proposed mitigation measures common to all systems are listed below:

- Recorded archaeological sites on the treatment plant sites may require formal evaluation prior to construction. Significant historic buildings may be adversely affected by project construction and require mitigation. The following measures have been identified to mitigate adverse affects to significant cultural resources at treatment plant sites and along conveyance corridors:
  - Develop archaeological treatment and monitoring plans to address inadvertent discovery of significant archaeological resources in construction and staging areas on treatment plant sites, portals, and in the vicinity of the safety relief point with a moderate to high probability for possibly significant archaeological deposits. Development of the plans would require completion of fieldwork, consultation with affected tribal governments to obtain input regarding treatment of hunter-fisher-gatherer and ethnographic period archaeological resources, and human remains. Consultation should also occur with the OAHP and King and/or Snohomish Counties regarding resource significance.
  - Prepare photographic documentation and written histories of significant historic buildings that would be adversely affected by project construction.

  - Monitor construction in the vicinity of significant historic buildings or structures to ensure they are not affected by ground settling and/or vibration caused by construction equipment.
  - For secondary portals, inventory and evaluate unevaluated historic buildings if secondary portals are utilized for project construction.
  - Monitor construction in areas with a high probability for archaeological deposits to identify and evaluate buried resources not identified through survey efforts.
  - Develop a Programmatic Agreement between the lead federal agency, the OAHP, local governments (affected tribal governments and nontribal governments, as appropriate), and the Advisory Council on Historic Preservation, if appropriate, to ensure compliance with Section 106 of the NHPA throughout the life of the project.

- If an archaeological site or traditional cultural place is determined eligible for listing in the NRHP, WHR, or a local historic register, then the lead federal agency, in consultation with the OAHP and King and/or Snohomish County, would determine if the eligible archaeological site or traditional cultural place can be avoided or will be adversely affected by project construction. Adverse effects to archaeological sites include loss of access, destruction, damage, and/or removal. Adverse effects to traditional cultural places include destruction, damage, removal or alteration of, or intrusion into the setting and viewshed. Archaeological deposits that may be significant could be avoided through project design.
- If adverse effects cannot be avoided, then the adverse effects would be mitigated through data recovery after consultation with the OAHP, the lead federal agency, King and/or Snohomish County, and, if appropriate, the affected tribal governments. Mitigation through data recovery may cause construction delays or work stoppages. If no adverse effects are identified in consultation with the lead federal agency and the OAHP, then the project can proceed.
- At a minimum, typical mitigation of adverse effects to eligible historic properties requires photographic and written documentation pursuant to the Secretary of Interior's *Standards and Guidelines for Architectural and Engineering Documentation: Historic American Buildings Survey/Historic American Engineering Record (HABS/HAER) Standards*, prior to alteration, relocation, or demolition of properties.

15.3.1.2 Outfall Impacts Common to All Systems

Construction Impacts Common to All Systems: Outfall

Construction excavation may adversely affect unknown shipwrecks that may be significant.

Operation Impacts Common to All Systems: Outfall

Outfall operation will not adversely affect significant cultural resources.

Proposed Mitigation Common to All Systems: Outfall

Proposed outfall mitigation measures are the same as those described in the section titled Proposed Mitigation Common to All Systems: Treatment Plant and Conveyance. Another proposed outfall mitigation measure is listed below:

- Additional surveys may be required in unsurveyed portions of outfall zones to identify known and unknown shipwrecks that may be significant.

15.3.2 Impacts and Mitigation: Route 9 System

15.3.2.1 Treatment Plant: Route 9

Construction Impacts: Route 9 Treatment Plant

Archaeological Resources

The Route 9 treatment plant site has a moderate probability for significant hunter-fisher-gatherer archaeological deposits and a low probability for significant ethnographic period archaeological resources. Historic archaeological deposits that may be significant may be affected in the southern portion and along west edge of the Route 9 treatment plant site.

Historic Buildings and Structures

The Route 9 treatment plant site has two significant historic buildings, the Wild West Mustang Ranch and the Howell Log Cabin, both of which would be adversely affected by project construction.

Operation Impacts: Route 9 Treatment Plant

It is anticipated that significant cultural resources would not be affected during treatment plant or onsite pump station operations associated with either the Unocal or Route 9 treatment plant sites.

Proposed Mitigation: Route 9 Treatment Plant

Mitigation measures at the Route 9 treatment plant site for archaeological resources would be largely the same measures as those listed in the section titled Proposed

Mitigation Common to All Systems: Treatment Plant and Conveyance. An additional Route 9 treatment plant mitigation measure is listed below:

- Mitigation for the two significant historic buildings on the Route 9 treatment plant site would be developed through consultation with Snohomish County. Mitigation measures may include photographic documentation, development of a written history, and/or possible relocation of the two significant historic buildings.

15.3.2.2 Route 9–195th Street Corridor

Construction Impacts: 195th Street Corridor

Primary Portal Siting Areas

Candidate portal sites Primary Portal Siting Areas 5, 11, 19, 41, and 44 have a high probability for unknown hunter-fisher-gatherer archaeological resources. Portals in Primary Portal Siting Areas 5, 11, and 19 also have a high probability for ethnographic period archaeological materials, while portals in Primary Portal Siting Area 19 have a high probability for historic period archaeological materials. No historic buildings eligible for listing in the NRHP, WHR, KCLL, or SCHRI are on the 195th Street corridor primary portal sites.

Secondary Portal Siting Areas

Candidate portal sites in Secondary Portal Siting Area 27 have a high probability for hunter-fisher-gatherer archaeological deposits. Portals in Secondary Portal Siting Area 45 have a high probability for ethnographic period archaeological resources. Portals in Secondary Portal Siting Areas 23 and 45 may have significant historic buildings.

Operation Impacts: 195th Street Corridor

Primary and Secondary Portal Siting Areas

System operations would not adversely affect archaeological resources in primary or secondary portals.

Proposed Mitigation: 195th Street Corridor

Proposed mitigation measures for the 195th Street corridor are listed below:

- Mitigation measures for Route 9 portals would be the same as those listed under Impacts and Mitigation Common to All Systems. Portals in Primary Portal Siting Areas 5, 11, 19, 41, and 44 would require additional professional archaeological field reconnaissance to determine if archaeological resources are present that may

be significant. No mitigation measures are necessary for historic buildings and structures in the 195th Street corridor.

- If secondary portals are selected for project construction, then recommendations regarding historic buildings in secondary portals listed in Forsman and Larson (2003) would be implemented. These include inventory and evaluation of unevaluated historic buildings, photographic documentation, and development of written histories of significant historic buildings. If construction monitoring in the vicinity of significant buildings or structures reveals that the buildings are being adversely affected by ground settling and/or ground vibration, then a protocol would be implemented to protect the buildings or, at a minimum, document effects on the buildings caused during project construction.

Portal 41 Influent Pump Station Option

Potential impacts on cultural resources for the Portal Siting Area 41 IPS Option are the same as described for the portal. The potential for encountering hunter-fisher-gatherer archaeological remnants is high at Portal Siting Area 41.

15.3.2.3 Route 9–228th Street Corridor

Construction Impacts: 228th Street Corridor

Primary Portal Siting Areas

All candidate portal sites in primary portal siting areas have a high probability for hunter-fisher-gatherer archaeological resources. Candidate portal sites in Primary Portal Siting Areas 11 and 19 also have a high probability for ethnographic period archaeological deposits. Candidate portal sites in Primary Portal Siting Areas 19, 26, and 39 have a high probability for historic period archaeological deposits.

Two significant historic buildings are located in Primary Portal Siting Area 39 in the 228th Street corridor, the Tol P. Jacobus House on Candidate Site 39C and the North Creek School on Candidate Site 39A. Both may be adversely affected by project construction.

Secondary Portal Siting Areas

Candidate portal sites in Secondary Portal Siting Area 37 have a high probability for historic period archaeological deposits. Candidate portal sites in Secondary Portal Siting Areas 22 and 24 may have significant historic buildings.

Operation Impacts: 228th Street Corridor

No impacts to significant cultural resources would be expected during operation of the conveyance systems associated with the Route 9 System.

Primary and Secondary Portal Siting Areas

System operations would not adversely affect archaeological resources in primary or secondary portals.

Proposed Mitigation: 228th Street Corridor

Proposed mitigation measures for the 228th Street corridor are listed below:

- If the 228th Street corridor is selected, portal sites in Primary Portal Siting Areas 11, 19, 26, 33, 39, 41, and 44 would require additional field reconnaissance.
- If project construction would adversely affect the two significant historic buildings on Primary Portal Candidate Sites 39A and 39C, then mitigation measures would be developed through consultation with the City of Bothell and Snohomish County.
- If secondary portals are selected for project construction, then recommendations regarding historic buildings in secondary portals listed in Forsman and Larson (2003) would be implemented. These include inventory and evaluation of unevaluated historic buildings, photographic documentation and development of written histories of significant historic buildings. If construction monitoring in the vicinity of significant buildings or structures reveals that the buildings are being adversely affected by ground settling and/or ground vibration then a protocol would be implemented to protect or, at a minimum, document effects on buildings caused during project construction.

Potential Mitigation: 228th Street Corridor

In addition to the measures described above, the following potential mitigation measure may be employed:

- If project construction adversely impacts the two historic buildings on Primary Portal Candidate Sites 39A and 39C, mitigation measures may include photographic documentation, development of a written history, and/or possible relocation of the two historic buildings.

Portal 41 Influent Pump Station Option

The impacts associated with the Route 9–228th Street Corridor IPS Option are the same as those described for the Route 9–195th Street Corridor IPS Option above.

15.3.2.4 Outfall: Route 9

Construction Impacts: Route 9 Outfall

Construction activities may adversely affect four reported and unevaluated shipwrecks in outfall Zone 7S, if impacts are significant and cannot be avoided. Construction activities are not anticipated to adversely affect hunter-fisher-gatherer archaeological resources in outfall Zone 7S.

Operation Impacts: Route 9 Outfall

Operation of an outfall is not anticipated to impact any of the shipwrecks present in outfall Zone 7S.

Proposed Mitigation: Route 9 Outfall

Proposed mitigation for the Route 9 outfall is the same as that described in the section titled Proposed Mitigation Common to All Systems: Treatment Plant and Conveyance.

15.3.3 Impacts and Mitigation: Unocal System

15.3.3.1 Treatment Plant: Unocal

Construction Impacts: Unocal Treatment Plant

Described below are potential impacts that may occur on the Unocal treatment plant site from construction activities.

Historic Buildings and Structures

There would be no impacts to significant historic buildings or structures from construction on the Unocal site. A previous historic building and structure survey of the site (Cox and Bard, 1996) and formal evaluation (Robbins, 1996) determined that the proposed Unocal Edmonds Bulk Fuel Terminal Historic District (Figure 15-3), including all buildings on the Unocal site, was not eligible for listing in the NRHP. During an archaeological field survey, archaeologists noted that most fuel storage tanks at the site were removed after they were evaluated (Lewarch et al., 2002).

Archaeological Resources

Construction impacts may adversely affect unknown hunter-fisher-gatherer and ethnographic period archaeological deposits on the north and west edges of the Unocal site in areas that were formerly the marine shoreline of Puget Sound and in marsh and stream habitats. Construction excavation may cause impacts to the previously recorded

Deer Creek Hatchery Shell Scatter (OAHP No. 45SN310). Impacts could consist of removing archaeological deposits, changing groundwater patterns, or covering deposits with fill or construction spoils, which might compact the deposits.

Construction excavation could cause impacts to unknown historic archaeological deposits in the northern portion of the Unocal treatment plant site where businesses operated in the early 1900s (Anderson Map Company, 1910; Cloud, 1953; Metsker, 1927; Whitfield, 1926). If historic archaeological deposits are identified during construction, construction excavation would be stopped while archaeologists evaluate the significance of the materials.

Operation Impacts: Unocal Treatment Plant

It is not anticipated that significant cultural resources would be adversely affected during treatment plant or onsite pump station operations associated with the Unocal treatment plant site.

Proposed Mitigation: Unocal Treatment Plant

Mitigation measures at the Unocal treatment plant site for archaeological resources would be the same as those listed under Proposed Mitigation Common to All Systems: Treatment Plant and Conveyance. No mitigation measures are required for historic buildings and structures in the Unocal treatment plant site because buildings on the site were determined not eligible for listing in the NRHP.

15.3.3.2 Conveyance: Unocal

Construction Impacts: Unocal Corridor

Primary Portal Siting Areas

Candidate sites in Primary Portal Siting Areas 11 and 14 have high probabilities for hunter-fisher-gatherer and ethnographic period archaeological resources. No historic buildings eligible for listing in the NRHP, WHR, KCLL, or SCHRI were identified on any Unocal corridor primary candidate portal sites.

Secondary Portal Siting Areas

Candidate portal sites in all secondary portal siting areas have high probabilities for hunter-fisher-gatherer and ethnographic period archaeological deposits. Portal sites in Secondary Portal Siting Areas 12 and 13 also have a high probability for historic period archaeological resources. Portal sites in Secondary Portal Siting Areas 10, 12 and 13 may have significant historic buildings.

Operation Impacts: Unocal Corridor

No impacts to significant cultural resources would be expected during operation of the conveyance systems associated with the Unocal System.

Primary and Secondary Portal Siting Areas

No impacts to significant cultural resources would be expected during operation of the conveyance systems associated with the Unocal System.

Proposed Mitigation: Unocal Corridor

Proposed mitigation measures for the Unocal conveyance system are listed below:

- Mitigation measures for the Unocal corridor would be the same as those listed under Proposed Mitigation Common to All Systems: Treatment Plant and Conveyance. If the Unocal treatment plant site is selected, portal sites in Primary Portal Siting Areas 11 and 14 would require additional field reconnaissance.
- Should it be determined that any of the secondary portals are needed (5, 10, 12, or 13) additional field reconnaissance would be required.
- No mitigation measures are necessary for historic buildings and structures in the Unocal corridor. If secondary portals are selected for project construction, then recommendations regarding historic buildings in secondary portals listed in the Forsman and Larson (2003) would be implemented. These include inventory and evaluation of unevaluated historic buildings, photographic documentation, and development of written histories of significant historic buildings. If construction monitoring in the vicinity of significant buildings or structures reveals that the buildings are being adversely affected by ground settling and/or ground vibration then a protocol would be implemented to protect the buildings or, at a minimum, document effects on the buildings caused during project construction.
- Mitigation measures for Portal Siting Area 41 include pre-construction archaeological reconnaissance, and an evaluation of unevaluated historic buildings. All other mitigation measures would be the same as described under Proposed Mitigation Common to All Systems: Treatment Plant and Conveyance.

15.3.3.3 Outfall: Unocal

Construction Impacts: Unocal Outfall

Construction activities are not anticipated to adversely affect shipwrecks in outfall Zone 6 because no shipwrecks have been identified. Construction activities are not anticipated to adversely affect hunter-fisher-gatherer archaeological resources in outfall Zone 6.

Operation Impacts: Unocal Outfall

Operation of an outfall is not anticipated to adversely affect shipwrecks in outfall Zone 6 because no shipwrecks have been identified.

Proposed Mitigation: Unocal Outfall

Mitigation would not be required for shipwrecks in outfall Zone 6.

15.3.4 Impacts: No Action Alternative

No direct impacts to cultural resources are anticipated as a result of the No Action Alternative as no ground disturbance from construction of the Brightwater System would occur. Proliferation of individual onsite wastewater treatment systems could occur, which could result in additional ground disturbances and impacts to cultural resources.

15.3.5 Cumulative Impacts

Construction and operation of either of the two systems would occur in areas of increasing urbanization that are currently experiencing pressure to develop. While Brightwater would be constructed to provide wastewater service for growth already planned by local jurisdictions, implementation of these projects would, on a site-specific basis at treatment plant sites and portals, incrementally add to the modified nature of the area and the overall continuing loss of significant cultural resources. However, King County's commitment to protect and preserve cultural resources where possible would help to diminish adverse effects to cultural resources resulting from constructing and operating the project.

15.4 Significant Unavoidable Adverse Impacts

There would be no significant unavoidable adverse impacts to cultural resources at the treatment plant sites, along the conveyance corridors, or within the outfall zones. All impacts are avoidable or could be mitigated.

15.5 Summary of Impacts and Mitigation

Table 15-6 includes a ranking of the relative risk of affecting cultural resources by system, including the treatment plant sites, primary and secondary portals, and outfall zones.

Probabilities for archaeological resources and number of historic buildings for portals in each portal siting area were summarized by primary portal and secondary portal for each corridor. The values for primary portals and secondary portals in each corridor were compared and ranked from one to three for historic buildings, hunter-fisher-gatherer archaeological deposits, ethnographic period archaeological deposits, and historic period archaeological deposits. The numeric values were converted into a relative ranking to directly compare the relative risk of affecting cultural resources in primary and secondary portals, by corridor. Highest risk designation indicates the primary or secondary portals in the corridor have the greatest probability of affecting archaeological resources or historic buildings among the three corridors being considered. A moderate risk designation indicates the group of primary or secondary portals ranks second for risk of affecting buildings or archaeological resources within the group of three corridors. A lowest risk designation indicates the portals have the lowest probabilities for affecting buildings or archaeological resources among the three corridors being considered.

The relative risk measurement in Table 15-6 also generally indicates the level of effort that would be required to mitigate adverse effects on cultural resources. The kinds of mitigation measures for historic buildings and archaeological resources would be the same for all three corridors. However, a corridor with a higher risk of affecting historic buildings or archaeological resources would require a greater level of effort to mitigate effects on the resources.

Table 15-6. Summary of Potential Cultural Resources Impacts and Proposed Mitigation for Brightwater Systems

Brightwater System	System Component	Impacts	Mitigation
Common to All Systems	Treatment Plant and Conveyance	Construction • Construction may affect unrecorded archaeological sites and significant buildings and structures on treatment plant and candidate portal sites. Impacts may occur from removal or disturbance during excavation, compaction from placement of fill, spoils, roadways, or buildings. • Geotechnical sampling, dewatering, or subsurface excavation may also affect unrecorded resources. Changes in groundwater levels or flows may also indirectly affect resources. • Historic buildings and structures may be impacted by ground vibration or settling. • Impacts to viewsheds for historic resources may also occur.	Construction • Recorded archaeological and historical sites on the treatment plant sites may require formal evaluation prior to construction. Measures include: o Develop archaeological treatment and monitoring plans to address inadvertent discovery of significant archaeological resources in construction and staging areas on treatment plant sites, portals, and in the vicinity of the safety relief point with a moderate to high probability for possibly significant archaeological deposits. o Prepare photographic documentation and written histories of significant historic buildings affected by project construction. o Monitor construction in the vicinity of significant historic buildings or structures. o For secondary portals, inventory and evaluate unevaluated historic buildings if secondary portals are utilized for project construction. o Monitor construction in areas with a high probability for archaeological deposits to identify and evaluate buried resources not identified through survey efforts. o Develop a Programmatic Agreement between the lead federal agency, the OAHP, local governments, and the Advisory Council on Historic Preservation, if appropriate, to ensure compliance with Section 106 of the NHPA throughout the life of the project. o If an archaeological site or traditional cultural place is determined eligible for listing in the NRHP, WHR, or a local historic register, then the lead federal agency, in consultation with the OAHP and King and/or Snohomish County, would determine if the eligible archaeological site or traditional cultural place can be avoided, or will be adversely affected by project construction.

Table 15-6. Summary of Potential Cultural Resources Impacts and Proposed Mitigation for Brightwater Systems (cont.)

Brightwater System	System Component	Impacts	Mitigation
Common to All Systems (cont.)	Treatment Plant and Conveyance (cont.)		• If adverse effects cannot be avoided, then the adverse effects would be mitigated through data recovery after consultation with the OAHP, the lead federal agency, King and/or Snohomish County and, if appropriate, the affected tribal governments. • At a minimum, typical mitigation of adverse effects to eligible historic properties requires photographic and written documentation pursuant to the Secretary of Interior's *Standards and Guidelines for Architectural and Engineering Documentation: Historic American Buildings Survey/Historic American Engineering Record (HABS/HAER) Standards*, prior to alteration, relocation, or demolition of properties.
		Operation • None identified.	Operation • None identified.
	Outfall	Construction • Potential impacts to unknown shipwrecks.	Construction • Additional surveys may be required in unsurveyed portions of outfall zones to identify known and unknown shipwrecks that may be significant.
		Operation • None identified.	Operation • None identified.
Route 9–195th Street System	Treatment Plant	Construction • Moderate probability for significant hunter-fisher-gatherer and a low probability for significant ethnographic archaeological resources. • Moderate probability for historic archaeological resources that might be significant on the west edge and southern portion of the project area. • Two culturally substantial buildings, the Wild West Mustang Ranch and the Howell Log Cabin, would be adversely affected by project construction.	Construction • Development of archaeological treatment and monitoring plans to address inadvertent discovery in moderate and high probability areas. • Evaluation of archaeological resources that may be significant. Avoidance if possible or mitigation of significant archaeological resources through data recovery. • Development of documentation measures for significant historic buildings that will be adversely affected during construction through consultation with Snohomish County.

Table 15-6. Summary of Potential Cultural Resources Impacts and Proposed Mitigation for Brightwater Systems (cont.)

Brightwater System	System Component	Impacts	Mitigation
Route 9–195th Street System (cont.)	Treatment Plant (cont.)	Operation • Significant cultural resources would not be affected during operation.	Operation • No mitigation measures are necessary for operation.
	Conveyance	Construction • Candidate portal sites in Primary Portal Siting Areas 5, 11, 19, 41 and 44 have a high probability for significant hunter-fisher-gatherer archaeological resources. • Candidate portal sites in Primary Portal Siting Areas 5, 11 and 19 have a high probability for significant ethnographic period archaeological resources. • Candidate portal sites in Primary Portal Siting Area 19 have a high probability for significant historic period archaeological resources. • Candidate portal sites in Secondary Portal Siting Area 27 have a high probability for significant hunter-fisher-gatherer archaeological resources. • Candidate portal sites in Secondary Portal Siting Area 45 have a high probability for significant ethnographic period archaeological resources. • Candidate portal sites in Secondary Portal Siting Areas 23 and 45 may have significant historic buildings.	Construction • Archaeological field reconnaissance in portals in Primary Portal Siting Areas 5, 11, 19, 41 and 44 before project construction. • Evaluation of archaeological resources that may be significant. Avoidance if possible or mitigation of significant archaeological resources through data recovery. • Archaeological field reconnaissance in Secondary Portal Siting Areas 27 and 45 if selected for project construction. • Inventory and evaluation of historic buildings in portals in Portal Siting Areas 23 and 45 if selected for project construction.
		Operation • Operation would not adversely affect cultural resources.	Operation • No mitigation measures are necessary for operations.
	Outfall Zone 7S	Construction • Construction may adversely affect four reported and unevaluated shipwrecks. • Potential for archaeological resources along onshore segment same as for Portal 19.	Construction • Surveys would be conducted in unsurveyed areas to identify known and unknown shipwrecks. Identified shipwrecks would be recorded, evaluated, and avoided if possible.

Table 15-6. Summary of Potential Cultural Resources Impacts and Proposed Mitigation for Brightwater Systems (cont.)

Brightwater System	System Component	Impacts	Mitigation
Route 9–195th Street System (cont.)	Outfall Zone 7S (cont.)	Operation • Operation not anticipated to adversely affect shipwrecks.	Operation • No mitigation measures are necessary for operations.
Route 9–228th Street System	Treatment Plant	Construction • Same as Route 9–195th Street system, above.	Construction • Same as Route 9–195th Street system, above.
		Operation • Significant cultural resources would not be affected during operations.	Operation • No mitigation measures are necessary for operations.
	Conveyance	Construction • All candidate portal sites in primary portal siting areas have a high probability for significant hunter-fisher-gatherer archaeological resources. • Candidate portal sites in Primary Portal Siting Areas 11 and 19 have a high probability for significant ethnographic period archaeological resources. • Candidate portal sites in Primary Portal Siting Areas 19, 26 and 39 have a high probability for significant historic period archaeological resources. • Candidate portal sites in Secondary Portal Siting Area 37 have a high probability for significant historic period archaeological resources. • Two culturally substantial historic buildings, the Tol P. Jacobus House in Candidate Portal Site 39C and the North Creek School in Candidate Portal Site 39A, may be adversely affected during construction. • Candidate portal sites in Secondary Portal Siting Areas 22 and 24 may have significant historic buildings.	Construction • Archaeological field reconnaissance on portal sites in Primary Portal Siting Areas before project construction. • Archaeological field reconnaissance and historic structure evaluation on candidate portal sites in secondary portal siting areas where conditions warrant, if selected for project construction. • Evaluation of archaeological resources that may be significant. Mitigation of significant archaeological resources through data recovery. • If project construction will adversely affect the significant buildings on Candidate Portal Sites 39A and 39C then documentation measures would be developed in consultation with the City of Bothell and Snohomish County.

Table 15-6. Summary of Potential Cultural Resources Impacts and Proposed Mitigation for Brightwater Systems (cont.)

Brightwater System	System Component	Impacts	Mitigation
Route 9–228th Street System (cont.)	Conveyance (cont.)	Operation • Operation would not adversely affect cultural resources.	Operation • No mitigation measures are necessary for operation.
	Outfall Zone 7S	Construction • Same as Route 9–195th Street System above.	Construction • Same as Route 9–195th Street System above.
		Operation • Operation would not adversely affect shipwrecks.	Operation • No mitigation measures are necessary for operation.
Unocal System	Treatment Plant	Construction • High probability for significant hunter-fisher-gatherer, ethnographic and historic period archaeological resources. Construction has a high probability of affecting the previously recorded Deer Creek Hatchery Shell Scatter (OAHP No. 45SN310) in the southeast corner of the treatment plant site.	Construction • Development of archaeological treatment and monitoring plans to address inadvertent discovery in moderate and high probability areas. • Monitor construction in high probability areas to identify and evaluate subsurface archaeological resources. • Evaluation of archaeological resources that may be significant. Avoidance if possible or mitigation of significant archaeological resources through data recovery. Testing and evaluation of archaeological site 45SN310.
		Operation • Significant cultural resources would not be affected during operations.	Operation • No mitigation measures are necessary for operation.

Table 15-6. Summary of Potential Cultural Resources Impacts and Proposed Mitigation for Brightwater Systems (cont.)

Brightwater System	System Component	Impacts	Mitigation
Unocal System (cont.)	Conveyance	Construction • Candidate portal sites in Primary Portal Siting Areas 11 and 14 have a high probability for significant hunter-fisher-gatherer and ethnographic period archaeological resources. • Candidate portal sites in all secondary portal siting areas have a high probability for significant hunter-fisher-gatherer and ethnographic period archaeological resources. • Candidate portal sites in Secondary Portal Siting Areas 12 and 13 have a high probability for significant historic period archaeological resources. • Candidate portal sites in Secondary Portal Siting Areas 10, 12 and 13 may have significant historic buildings.	Construction • Archaeological field reconnaissance on candidate portal sites in Primary Portal Siting Areas 11 and 14, and on Secondary Portal Siting Areas 5, 10, 12, or 13, if any of them are needed. • Inventory and evaluation of historic buildings on candidate portal sites in Secondary Portal Siting Areas 10, 12 and 13 if selected for project construction.
		Operation • Operation would not adversely affect cultural resources.	Operation • No mitigation measures are necessary for operation.
	Outfall Zone 6	Construction • Construction not anticipated to adversely affect shipwrecks or archaeological resources. Operation • Operation would not adversely affect shipwrecks.	Construction • No mitigation measures are necessary for construction. Operation • No mitigation measures are necessary for operation.
No Action Alternative		• No Impacts resulting from Brightwater project construction or operation would occur.	• No mitigation is proposed.

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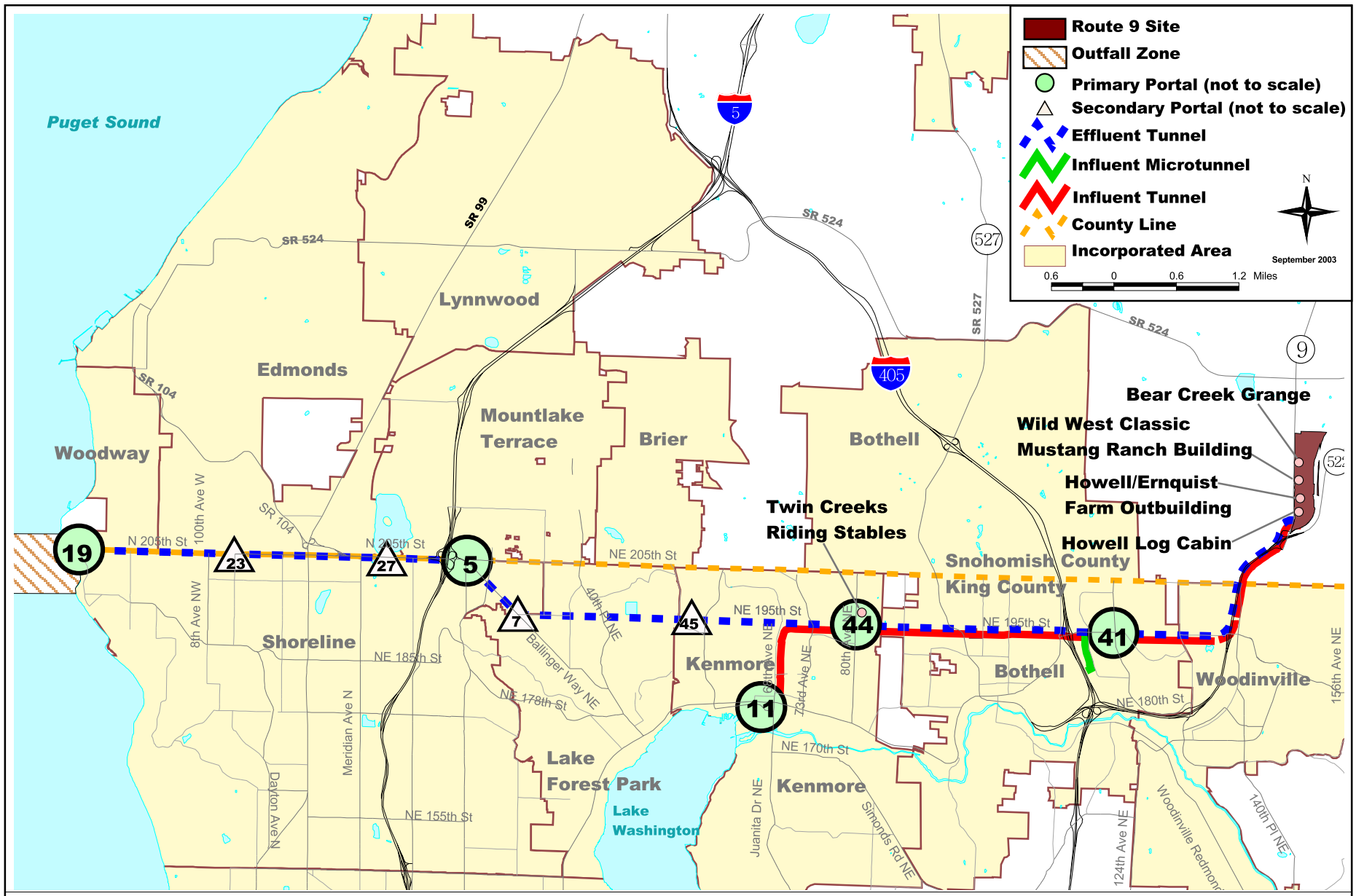
Figure 15-3 Historic Buildings Evaluated for Significance in the Unocal Corridor Primary portal Siting Areas and Unocal Treatment Plant Site



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Natural Resources and Parks
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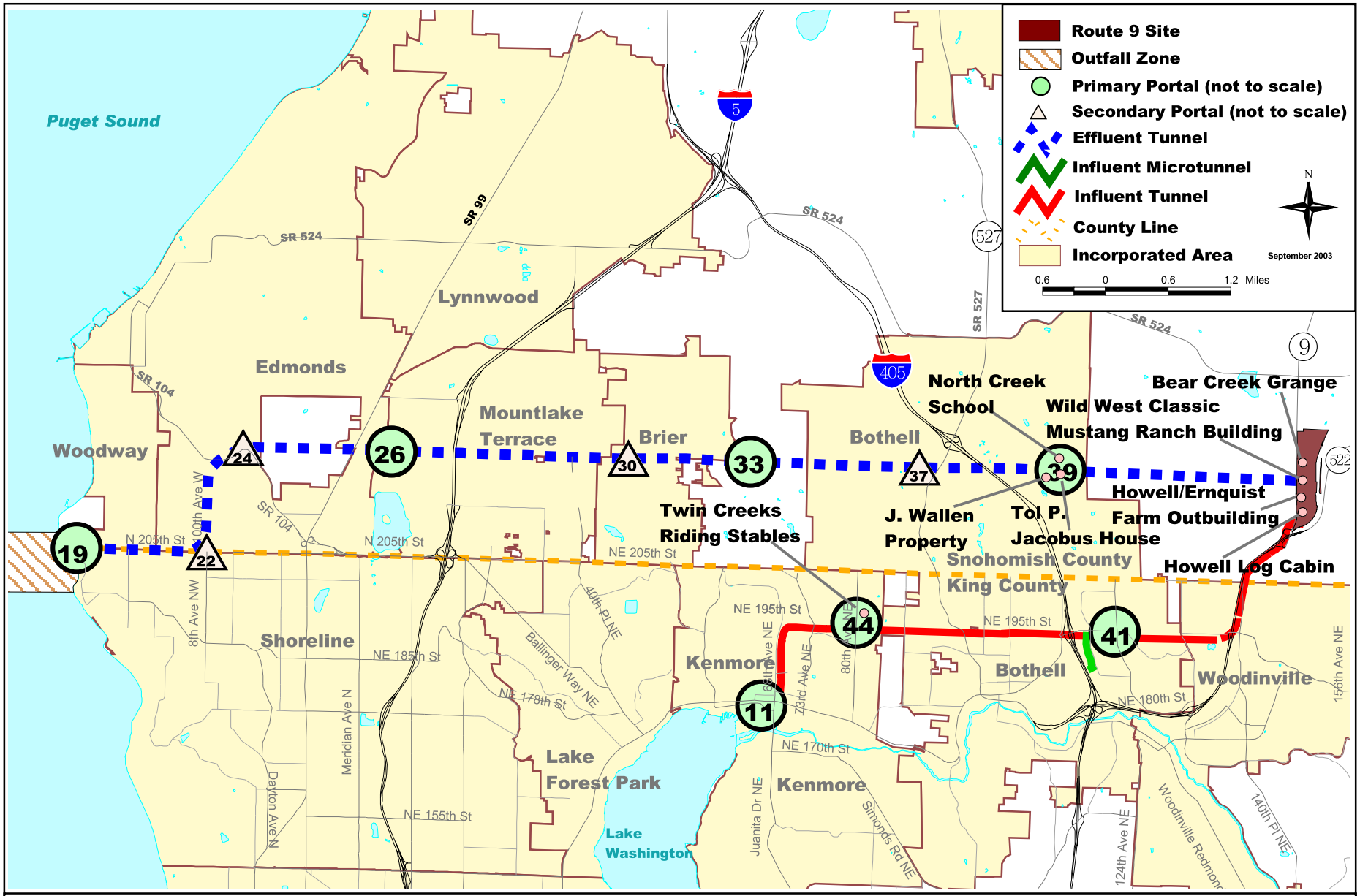
Figure 15-1: Historic Buildings Evaluated for Significance on the Route 9-195th Corridor Primary Portal Siting Areas and Treatment Plant Site

BRIGHTWATER FINAL EIS



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Wastewater Treatment Division

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Figure 15-2: Historic Buildings Evaluated for Significance on the Route 9-228th Corridor Primary Portal Siting Areas and Treatment Plant Site

BRIGHTWATER FINAL EIS

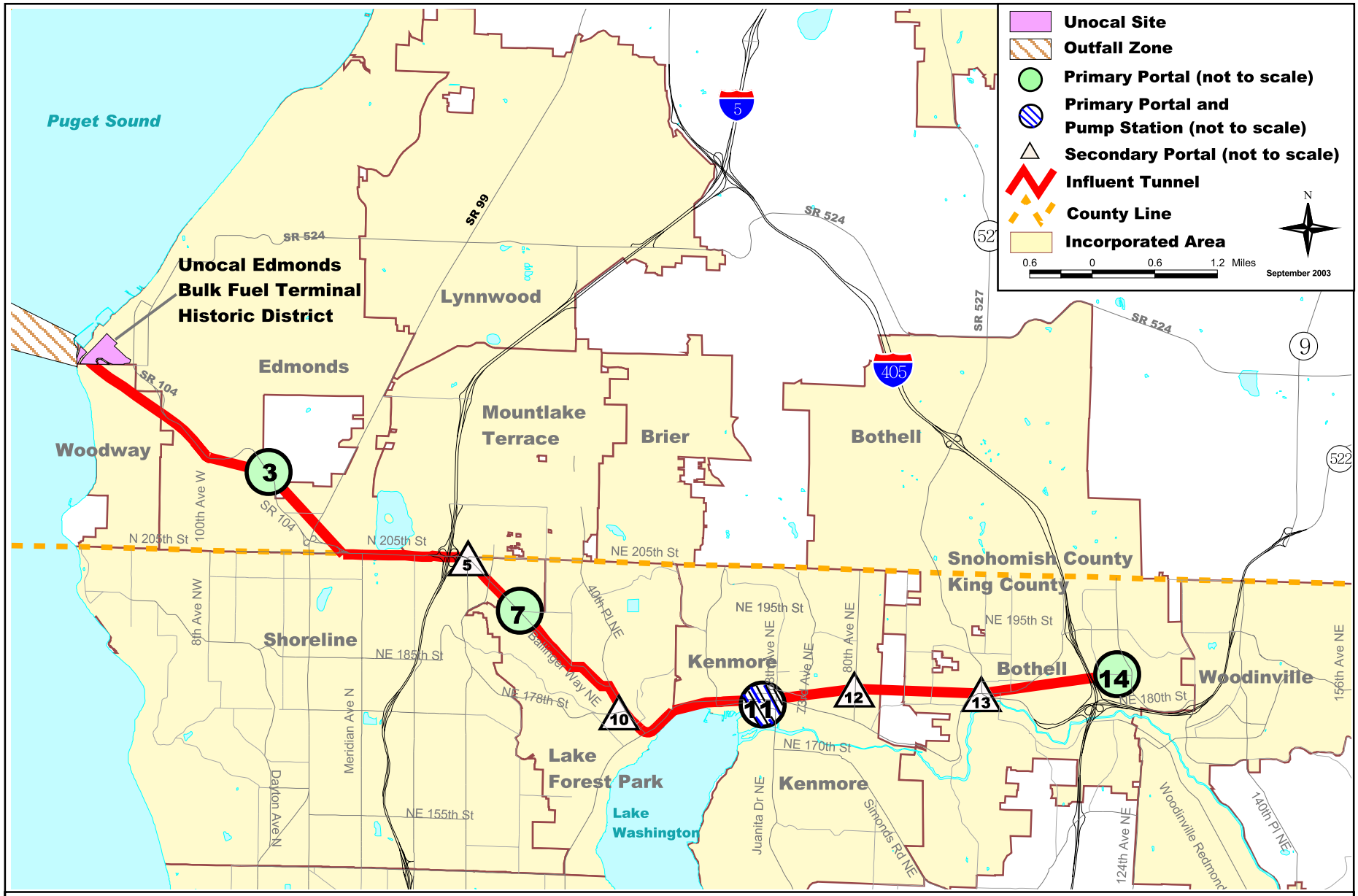

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Figure 15-3: Historic Buildings Evaluated for Significance on the Unocal Corridor Primary Portal Siting Areas and Treatment Plant Site

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